# SOCIETY OF ARTS.

**FRIDAY, MARCH 4th, 1853.**

## TWELFTH ORDINARY MEETING,

*Wednesday, March 2nd,* 1853.

The Twelfth Ordinary Meeting of the Society was held on Wednesday, the 2nd inst., Charles Wentworth Dilke, Esq., Vice-President in the chair.

The following were elected Members:

Barnard, John Ansley Louis, 25, Holloway-place, Holloway.
Brown, William George, 9, Whitehorse-lane, Stepney.
Cotton, Michael G., Wanstead, Essex.
Hackblock, William, The Rock, Reigate.
Hudson, J. W., Ph. D., Athenæum, Manchester.
Martineau, David, Tulse-hill, Surrey.
Scott, James, 1, Eccleston-street, Chester-square.

and the names of five candidates for membership were read.

The Chairman stated, that in consequence of the sudden illness of a member of Mr. Lacon's family, he had been summoned into Norfolk, by electric telegraph, at four o'clock that afternoon. He, therefore, called upon the Secretary to read Mr. Lacon's paper "On the Management of Ships' Boats, and the Loss of Life at Sea."

After a brief statement of the reasons which induced Mr. Lacon to bring the subject before the Society of Arts, the Author proceeded:

I claim your attention, because, having been present during the long and patient investigation into the loss of the *Orion* before the High Court of Justiciary of Scotland in August, 1850, when the Captain was sentenced to eighteen months' imprisonment, and the mate to seven years' transportation, I am able to speak to you with confidence of the utter inadequacy of any means that have hitherto been adopted for the preservation of the lives of the passengers and the crews on board of ships in case of accidents; and because, notwithstanding various representations to the Government, and the most earnest appeals to parties interested in the matter, nothing has hitherto been done to remedy the evil.

That the subject is one of deep public interest I am assured, by notices of the press in this City, in Liverpool, in Glasgow, in Edinburgh, in Aberdeen, in Bristol, in Plymouth, in America, in Holland, in France, and in India: and is it not remarkable, that having been thrice ignored by the Admiralty, and thrice refused a trial in one of Her Majesty's ships, that within twelve hours of the receipt of the last refusal, intelligence should have been received of the loss of the *Birkenhead:* and is it not still more remarkable that six months ago, having gone down to Liverpool for only one day, I should have gone to the very vessel, whose loss we have so lately had to deplore—that I should have gone on board that very vessel and called one of the seamen to me—that I should have pointed out to him the improper manner in which the boats were secured, and that I should have cautioned him that a day might come when inattention to apparently such small particulars might cost many lives? That day has come, and those boats were useless: they were carried down with the ship when she sank, and were not disengaged from her till sixteen hours after the accident.

It is not my intention, however, on the present occasion, to go into the question of the general management of the boats, nor into the number of the boats carried by each ship, or the proportion of the boats to the tonnage. That the boats in most cases are inadequate to save the lives of those on board, is a fact so notorious, and may be proved by an amount of evidence so overwhelming, that I should only be trifling with your time were I to go into the matter here.

Still less do I desire to pass any strictures upon the duties that have been imposed upon the Government by the Legislature. I believe there is here a wide field for inquiry, and I leave it to others more able than myself to look into it. I confine myself to the fact, that notwithstanding the character of the boats, notwithstanding any inspection by the Government, the appliances for using those boats, and getting them into the water, are so essentially bad, that they have been condemned in an Official Report to Parliament in February, 1852, in the following words:

"The means of lowering boats evenly, and of readily disengaging the tackles, together with plugs which are self-acting, are desiderata wanting throughout the naval service, and that it may be expected that some useful method of supplying these defects will be devised."

Nay, I go further; and maintain, that the present method of lowering boats into the water is contrary to the acknowledged principles of mechanical science; and that, instead of an accident exciting any astonishment, an accident must be looked upon rather as the rule than as the exception.

I purpose, then, Gentlemen, to reverse the order of proceeding; and instead of beginning with the proofs of the dangers of the present system, I shall first explain to you what that system is, that you may be better able to follow me when I read the evidence to you.

In the ordinary mode of lowering a boat, it requires two men in the boat (one at each fall, to unhook,) and on board the ship, two men to lower, and two men to clear the falls—no easy matter where the falls are little used, and consequently stiff, and where, as in the case of the largest merchant-steamers, each fall is twenty-two fathoms, or 132 feet, long. Under any circumstances, it requires the greatest unanimity of action on the part of these six men; but how is this to be insured during periods of excitement and danger, and during dark nights? If one of the falls should be lowered too quickly—if one of them should foul, or be accidentally let go, then one end of the boat having reached the water before the other, it is impossible for the men in the boat to unhook at the same time, and an accident must inevitably happen. Or, supposing that all has gone right on board the ship, and that before the boat has reached the water, a sea should lift the stern of the boat and unhook the after-tackle, then (as in the case of the *Amazon*), "the boat would sheer across the sea before the people in her could unhook the fore-tackle, and they would thereby be washed out, and the boat would remain hanging by the bow;"

or if, in the act of lowering, a sea should strike the bow, and unhook the fore-tackle, then "the fore-end would immediately fall down, and the people would be precipitated into the sea and drowned."

But why, argued Mr. Lacon, is this operation of lowering a boat different from any mechanical operation of the like character? It is an acknowledged principle of mechanics, that to raise a weight requires a power; but what is gained in power is lost in time. We see it in the every-day operations of raising a weight, that when the weight has attained the requisite elevation, the power is disconnected, and a break, or other analogous contrivance, is substituted in order to regulate the descent.

Why, therefore, should not the same plan be adopted in the case of weights (boats), which remain for a lengthened period at the requisite elevation, and which are only required on sudden emergencies? That the principle was acknowledged even by sailors themselves might be shown in the case of the anchor.

After the anchor has been elevated by means of the chain to the level of the water, a tackle, called the "cat," is used to raise it to the level of the deck. This is the power; and sailors know very well that if they were to allow the same to remain, the anchor could never be used on sudden emergencies: they therefore substitute a single rope (called the cathead stopper), and remove the tackle. They remove the one tackle from the anchor: why, therefore, should they not remove the two tackles from the boats, which, it has been shown, in their use require the greatest unanimity of action?

In Mr. Lacon's method of lowering a boat this was proposed to be effected by a long bar, or rod of iron, with a barrel at either end, of a sufficient size to carry the requisite length of rope or chain, with a friction pulley and break in the centre. The ropes, or chains, are connected to the barrels in such a manner that they will support any amount of weight till such time as the boat has reached the water, when they will unship, and disconnect by their own weight; by which means he prevents the possibility of the boat being dragged forward, or capsized, or swamped, by the action of the ship. By means of the friction break he enables one man to regulate the descent of the boat, and by means of the parallel action of the two barrels he insures the boat descending evenly upon the water.

To show that the plan thus proposed was not mere theory, diagrams were exhibited of the fittings (drawn to scale) on board two of the South Eastern and Continental Company's ships, with a certificate of experiments conducted at Folkestone, on the 5th of August last, when a boat was lowered several times during the day, while steaming at the rate of twelve and a half knots, with Mr. Lacon and four men in her.

To illustrate the dangers of the present system, the following extracts from the evidence of the survivors of the *Amazon* were read.

Mr. Neilson states:—"In the meantime the aftermost boat on the port side (I think the mail boat) was lowered down, with probably twenty-five people in her, but the moment she touched the water she swamped, and all hands that were in her drifted astern, all clinging together with dreadful shrieks. The next boat forward (the pinnace) was also lowered full, but by some accident the after-tackle alone got unhooked, and she was dragged forward by the fore-tackle with such rapidity that the sea swept round her sides, and washed every soul out of her. At this time the second cutter had reached the water, when a sea struck her bow, and as the ship rose from the swell of the waves she lifted the boat perpendicularly by the stern tackle, and discharged all the unfortunate inmates but two, who hung shrieking across the thwarts."

Lieutenant Grylls, R. N., said:—"The first boat attempted to be lowered was on the port quarter. Lieut. Grylls was himself lowering the after fall, when Captain Symons seized him by the arm and besought him to desist, as he said everybody would be drowned. Lieut. Grylls then called out to the person by the foremost fall imploring him not to lower, as the ship was going so fast. The person at the foremost fall, by constant and urgent request of the people in the boat, let the fall go, by which means the boat turned over, and as nearly as could be seen every one was washed out of her. Seeing this at the moment, Lieut. Grylls attempted to let go the after fall so as to save them; but the fall being jammed and having fouled, and the boat thus not being clear, her stern hung in the air for a moment until cut adrift by some one, when she turned over; and seeing the people washed away, Lieut. Grylls turned aside from the appalling sight in horror."

Henry Wright, seaman, said:—"When in the boat, preventing her from being swamped by trying to clear the fore-tackle-fall, the block caught his left hand, and took off the tops of his two middle fingers and smashed his little finger."

Alexander Lang, quartermaster, said:—"Went to the wheel, but it was fouled by the tackle-fall of the dingy."

George Harding said:—"The tackle-fall of the dingy had entangled the rudder."

On the night of the 17th of June, 1850 (a calm and comparatively clear night), the *Orion* struck upon the outer Ward Rock off the harbour of Portpatrick. Mr. Lacon then read from a copy of the indictment:—"She had four boats, two of them life-boats; of these one of the quarter-boats when being lowered was capsized or swamped, in consequence of the tackle being out of order, and unfit for immediate and effective working; while one of the life-boats was never got effectually or completely disengaged from the ship until at or near the time when the ship went down, when the said life-boat was turned over by the said ship in sinking, and was capsized or swamped in consequence of her not being previously and timefully disengaged from the said ship, or lowered or set free in the sea, because of the undue delay and difficulty occasioned, as above libelled, by which means various persons who had got within the said quarter-boat and life-boat respectively were thrown into the water and drowned."

D. Walker, seaman, in his evidence before the High Court of Justiciary in Edinburgh, stated, that while lowering the starboard quarter-boat, the bows were down in the water while the other end hung by the tackle, and one or two tumbled out of her; and while the port life-boat

was lowered, there were one or two tumbled out of her!

Robert Wilson, Clyde-Pilot of the *Orion*, says, speaking of the larboard life-boat, "I could not lower the tackle on account of the weight in her." Of a complement of 200 persons, crew and passengers, forty of them were drowned.

The *Avenger*, a steam-frigate, Capt. Charles Napier, with an armament of six heavy guns, and a crew of 250 men, sailed from Gibraltar on the 17th of December, 1847. At nine p.m. on the 20th of December, while running with square yards at the rate of eight or nine knots, under double-reefed topsails and reefed foresail, she struck upon the Sorelli. The officers in the gun-room were upon the point of retiring to their berths, when they were startled by a sudden jerk; the ship gave a heavy lurch, as if filling, and her whole frame appeared shaken, and every beam loosened. The captain then gave the order "out boats." These were his last words, for he was immediately afterwards washed overboard and drowned. Whilst they were in the act of lowering the cutter, an accident occurred which was nearly proving fatal to all their hopes of preservation: in lowering the boat the foremost fall got jammed, and the after one going freely the boat had her stern in the water and her bows in the air. At this moment Dr. Steel threw in his cloak, which fortunately got into the sheeve-hole of the after fall and stopped it. Just as the boat touched the water, and before the tackles were unhooked, the ship again struck heavily and began swinging broadside to the sea, falling over to starboard at the same time, which, from the cutter being the port one, made her crash with great violence against the ship's side. However, by dint of great exertion, the boat was got free from the tackles and pulled clear of the ship. Of a crew of 250, 246 were drowned!

In July, 1843, the *Pegasus* left Leith at half-past five, P.M. It was a most beautiful evening, perfectly calm, and very smooth water. At half-past twelve she struck upon the Goldstone Rock, near the Fern Islands, about two miles from the shore. The only two boats on board (both of them quarter-boats) were lowered by the passengers, contrary to the captain's orders. The passengers were all crowding into the boats, and all that so got into them were drowned. One of the crew states, that "they had no idea of the weight of it; they let go the boat, and it filled with water immediately." The boats were swamped before the vessel went down. There were no seamen among the passengers who took charge of the boats in lowering them down. "I went to the master first," said William Brown, the mate, "and there was one of the boats hanging over the end when I went back."

At midnight, on the 7th of April, 1843, the *Solway*, when about twenty miles west of Corunna, struck upon a rock; she was backed off, and in twenty-five minutes afterwards she sank while making for the shore. Whilst proceeding towards the land, a general rush was made to the pinnace, which hung at the davits on the larboard side; twenty-five persons got into her, and, having seated themselves, cried out to those on board to lower away. Captain Duncan, who evidently foresaw the great danger of lowering a boat at full speed, endeavoured to prevent this; but the confusion was so great on board, and his own attention so entirely devoted to the great object of getting the paddle-box life-boats afloat and making the shore, that his opposition was of no avail, and the forward tackle was let fly by the run, and the bows of the boat dropped into the water. The situation of the poor wretches, who had made this their hope of escape, was now perilous in the extreme. A cry of "For God's sake, let go the after-tackle!" was answered by some of the crew as soon as possible, and the pinnace fell into the water. The ship had still full speed upon her; and now a heavy sea striking the boat, as she floated for an instant, swept every soul into the ocean!

In the wreck of the *Conqueror*, near Boulogne, on the 13th of January, 1842, the ladies, children, and servants were handed into the cutter; the water was not above a couple of yards off her bottom, but the falls of the tackle had got so entangled with the rest of the cordage upon the poop, that they were not able to lower them. The captain cut the boat from the davits.

From the loss of the *Kent* by fire, in the Bay of Biscay, on the 1st of March, 1825, when eighty-one individuals perished, an account of which was published in an excellent little pamphlet by the Religious Tract Society, Mr. Lacon selected the following extract:

"Although Captain Cobb had used every precaution to diminish the danger of the boat's descent by stationing a man with an axe to cut away the tackle from either extremity, should the slightest difficulty occur in unhooking it, yet the peril attending the whole operation, which can only be adequately estimated by nautical men, had very nearly proved fatal to its numerous inmates. After one or two unsuccessful attempts to place the little frail bark fairly upon the surface of the water, the command was at length given to unhook. The tackle at the stern was in consequence immediately cleared, but the ropes at the bow, having got foul, the sailor there found it impossible to obey the order. In vain was the axe applied to the entangled tackle; the moment was inconceivably critical, as the boat, which necessarily followed the motion of the ship, was gradually rising out of the water, and must in another instant have been hanging perpendicularly by the bow, and its helpless passengers launched into the deep, had not a most providential wave suddenly struck and lifted up the stem, so as to enable the seaman to release the tackle. The boat being thus dexterously released from the ship, was seen after a while from the poop, battling with the billows."

On Saturday, the 20th of November, 1804, the English fleet, under the command of Admiral the Hon. W. Cornwallis, lay at anchor in Torbay. As it was late in the year, and the night dark and stormy, orders were given for the fleet to put to sea. Unfortunately, in fishing the anchor of the *Venerable*, 74, the fish-hook gave way, and a man was precipitated into the sea. The alarm was immediately given, and one of the cutters was ordered to be lowered. Numbers of the crew rushed aft to carry the orders into effect; but, in the confusion, one of the falls was suddenly let go, the boat fell by the run, filled, and a midshipman and two of the men were drowned. In a few minutes another boat was lowered, which

fortunately succeeded in picking up the man who first fell overboard. Owing to this delay, the *Venerable* fell off considerably towards Brixham, and, getting stern-way, was unable to weather the Berry Head. Every effort was made to stay her, but the ship refused; and not having room to wear, she drove on shore at the north part of the bay on a spot called Roundem Head, near Paington. In sixteen hours from the time she first struck, the whole vessel had disappeared, under the action of a raging surf lashed into fury by the violence of the gale. The crew consisted of 590, of whom a few were drowned.

The last instance, continued the author, to which I wish to direct your attention, is a most melancholy one, and may, perhaps, be in the recollection of many of you. This occurred on the return of the *Melville* flag ship from the East Indies, when the gallant son of the Admiral was drowned, in his attempt to save the life of a seaman who had fallen overboard. I am not aware that there is any printed account of the occurrence; so that I am glad of this opportunity of putting it upon record. The letter which I am now about to read is from Captain A. S. Hammond, R.N., to Lieut.-Colonel Willes, R.M., both on board of the ship at the time—the one as lieutenant, the other in command of the Marines:

"On the occasion of Sir John Gore's son being drowned, off the Cape of Good Hope, on the 30th of April, 1835, the *Melville*, seventy-four guns, on board of which ship the Admiral's flag was flying, was lying to, under a main trysail. The courses were being hauled up, and topsails lowered on the cap, with yards braced in and secured. A man having fallen overboard from the weather fore-yard arm, Lieut. John Gore, the flag lieutenant, jumped overboard to save him, from the weather quarter boat; and soon afterwards the lee quarter boat was cleared away and lowered, with Lieut. Fitzgerald in her, and ten men,—at which operation I attended. But, in spite of every attention, from the heavy lurching of the ship, and her rolling to windward, a considerable quantity of water was shipped by her; and I am also of opinion the boat was shaken by the blows which she received in striking against the ship's side whilst in the act of lowering.

"In consequence of this impression, I spoke to the Captain (the present Rear-Admiral Sir Henry Hart, K.C.H.), and asked him if I might be allowed to take the weather-quarter cutter, in case of any disaster having happened to the other boat; to which request, after some consideration, he gave his consent, and I jumped into her, quickly followed by numerous volunteers, and a fine young Middy of the name of Heath, (the present Commander of that name, and now in command of the Screw Sloop, *Niger*).

"Any amelioration to the old established plan of lowering boats, would, in this instance, have been of infinite service; for I have never witnessed a worse occasion for lowering a boat during my experience at sea. From the weight of men in her, and the constant lurching of the ship, we were nearly thrown out of the boat frequently, and I thought she would have been stove in, from striking against the muzzles of the main-deck guns; and before we could get the tackles unhooked, the indraught took us under the counter, and we had the nearest escape possible from being swamped by it. Fortunately we managed to get clear of the ship without mishap, and proceeded on our search, which proved, alas! a most fruitless one, as all hands were lost except ourselves.

"Don't you recollect," continues Capt. Hammond, "when a man fell overboard from us, just after leaving the Sand Heads, and a quarter-boat was lowered, with, I think, Crawford in her, and the boat's crew, and something happened to the boat's tackle falls in lowering, and threw the whole of the men into the water, and they also went astern together with the swamped boat, oars, bottom boards, &c., floating about! Fortunately no lives were lost, but there might have been!"

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Capt. HENDERSON fully concurred with Mr. Lacon as to the great advantages which would accrue from the use of the proposed plan of lowering boats. A great objection was, however, the expense it involved, the cost of the apparatus for lowering being considerably more than that of the boats themselves. This would be a fatal objection to its general use amongst our ships, estimated at about 23,000 in number. Of these about 600 were large passenger-steamers, and with these, expense in anything which involved a question of life and death ought not to be made a consideration, especially when it was remembered that the owners were sufficiently well paid to enable them to take such precautions. For these large steamers nothing better could be devised than Mr. Lacon's plan; and the more especially, since many of the men on board these steamers were well accustomed to mechanical contrivances. He thought, with regard to such vessels, Government ought to take the matter up, and make it necessary that they should have on board the means of saving every man in the vessel, in case of accident. But in regard to upwards of 20,000 of our ordinary sea-going vessels, there was both the question of expense, and the fact that the men were altogether unaccustomed to the use of such tackle. In small ships a boat would not cost more than from 10*l.* to 15*l.* or 20*l.*, whereas this new tackle for lowering would cost 40*l.*; and after all the expense, perhaps the men could not use it. After twenty-five years' experience, during which he had lost several boats, he had adopted the plan used in the Pacific by American whalers, where the six men who belonged to each boat had to manage the entire work of lowering themselves, and where, after they had seen a whale, every moment was of consequence. Capt. Henderson illustrated his meaning by reference to a model. Instead of the ordinary plan of using at each end one block, working between two sheaves, which, if the men did not heave fair, caused the rope to be jammed, he proposed to use two threefold blocks at each end, hung to the davits, which not only must work free, and prevent jamming, but, by giving additional purchase, enable the men in the boat to guide it themselves. He also strongly deprecated the practice of keeping boats covered, which was often customary. It was altogether unnecessary, and the cause of much delay and many accidents.

A conversation then ensued on the subject of plugs for boats, arising out of the repeated occasions in which, in case of accident, the plugs have been lost, as was the case in the recent wreck of the *Victoria* steamer. Various suggestions were made for securing them, or for the

use of some kind of valve which would allow the water to escape from the inside, but would be closed by the pressure of the water underneath. Several contrivances had been patented for the purpose, all of which were to some extent good, it was stated; that the fact of their being more expensive than the common plugs, kept them from general use. The proper plan was to have the ordinary plugs secured beside the hole, and where that was not done, it was from neglect. A very efficient contrivance had been invented by Captain Claxton, which entirely superseded the plug; it consisted of a small brass tap, fixed in the side of the keel, by which the water escaped from the inside when opened, and when closed entirely prevented the entrance of the sea. Some remarks were also made on the mode of lashing the oars to the boats, and a strap and buckle was suggested to supply the place of cordage, as being more easily undone in the absence of a knife, in case of accident.

Mr. WARREN, in answer to a question, said, by Mr. Lacon's plan of lowering, both ends of the boat must go down together; there could not possibly be any up-ending. It was a simple principle applied every day to the lowering and raising of all sorts of weights; the descent could be stopped at any moment; and it afforded absolute certainty of safe and equal lowering, so that the boat should reach the water on an even keel.

In answer to a question as to how long Mr. Lacon's plan had been before the public, and if it had been tried practically,

Mr. FARLEY stated, that it had been before the public about a year, and that it had been tried with great success. Some months ago the *Queen of the Belgians* steamer made the trial off Folkstone in a high gale of wind. He himself was on board. It was tried first with four men, and the boat was lowered safely whilst the steamer was going at full speed. Again it was tried with two men and Mr. Lacon with equal success, notwithstanding a heavy sea was running high at the time, and that the steamer was going at the rate of twelve and a half knots an hour.

The CHAIRMAN, in expressing the thanks of the Society to Mr. Lacon, regretted his unavoidable absence, but hoped that on a future occasion he would be able to attend and give them some *viva voce* information on the subject.

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A model of a small apparatus recently patented by Mr. Brae, of Leeds, was exhibited. Its immediate destination, is a self-retaining support for Venetian blinds; in which the inconvenience daily endured by the present mode of fastening down the lifting cords by twisting them round a couple of hooks in the window-frame, must be too present to every one's domestic experience to need description.

Contrivances for the purpose of self-supporting Venetian blinds are, it is true, already in partial use; but they are subject to many objections, one only of which need be alluded to—so weighty, that of itself it recommends any improvement that may obviate it: this is the necessity for the blind being originally designed and manufactured for the express apparatus intended to be applied to it, thereby excluding from help the many thousands of existing blinds constructed upon the old principle.

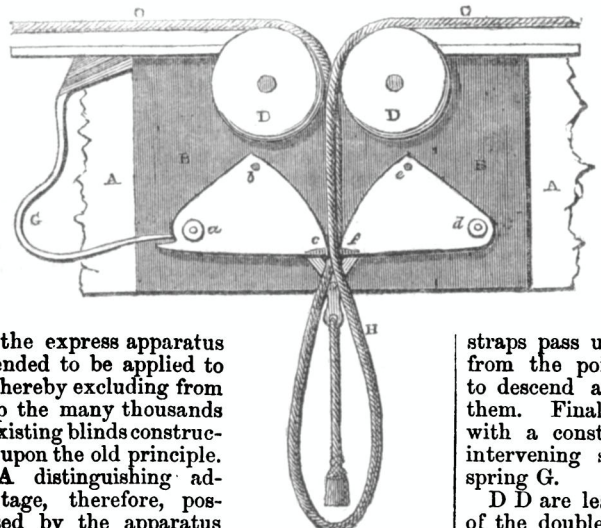

*Fig.* 1.

A distinguishing advantage, therefore, possessed by the apparatus exhibited, is the facility it presents for being attached to any blind, old or new; but there is another peculiarity which may or may not be considered an advantage, which is the option of placing the raising cords so as to hang down in the centre of the window instead of at the side, and thereby removing the operation to a more convenient and accessible situation.

The whole apparatus is contained in a small casing scarcely exceeding the size of a snuffbox, the interior of which is represented in the annexed drawing (*Fig.* 1); *a, b, c,—d, e, f,*—are two eccentric segments revolving upon the pivots *a, d.*

The radii *a b*—*d e* are shorter than the radii *a c*—*d f*; consequently when the segments are in the position represented in the drawing, their circumferential edges are nearly in contact; but when they are drawn down so as to cause the shorter radii to approach, a considerable space or opening will then exist between them. Each segment is provided with a similar segment of cogged teeth, only that these are not eccentric, but are portions of true circles, so that when together, the teeth of one working between those of the other, the two segments are always constrained to move simultaneously—for the sake of clearness these cogged portions are omitted in the figure.

Two straps are seen beneath the segments uniting in one shorter strap, from which the middle tasseled cord depends. These straps pass up behind the segments, and pulling from the points *b* and *e* cause the segments to descend and increase the opening between them. Finally, the segments are impressed with a constant tendency to close upon any intervening substance by the action of the spring G.

D D are leading pulleys, over which the ends of the double cord H are led, in the usual way, down through the blades of the blind, so as to gather it up.

It will be apparent from this description that when the double cord H is pulled downwards the segments will at once give way and admit of the blind being pulled up, but it cannot recede,

because the tendency is then reversed, and the greater the pull the greater the resistance to it; therefore the blind remains at any altitude: and when it becomes desirable to lower it, the tasseled cord is pulled, by which the segments are again reversed, the resistance to the descent removed, and the extent of the descent regulated by the principal cords in the usual way. The small box containing the apparatus may be so constructed as either to be screwed on to the exterior of the top rail of the blind, or it may, as in the model, be bodily let into its substance.

Mr. Brae believes that the principle shown in this little invention may be usefully applied in many other cases, and especially in certain of the numerous operations on board ship, in which the power of tightening and firmly holding a rope or cord is required.

Fig. 2

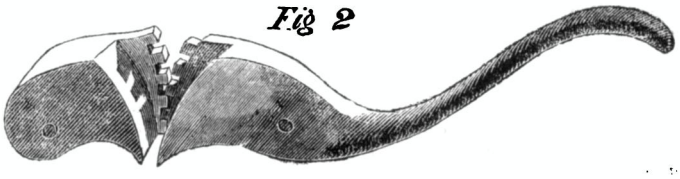

Fig. 2 represents the construction of the segments of the detainer, in its application to lowering boats from the davits, freeing life-buoys, and other purposes on board ship,—when, instead of a string for the back, and a spring to incline the longer radii to be opposed, a lever and counterpoise are used.

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A specimen of china, coated with silver, was exhibited. Hitherto the art of electro-plating has been chiefly confined to metallic bodies, owing to their affinity for such deposits. The patent recently taken out by Mr. Ridgway, of the Staffordshire Potteries, extends it to Parian figures, ornamental china and glass, and to every description of Ceramic ware.

The advantages are manifold, when it is considered that this art may be applied to the most beautiful models, so as to retain all their sharpness and effect, without the cost of dies and other heavy charges to which the metallic department is subject, thereby cheapening the article; while by means of chasing and embossing, richness is given.

The mode of effecting the electro-deposit is as follows:—In the first place, the articles are steeped in strong alcohol, or certain gelatinous solutions, and when nearly dry immersed in nitrate of silver or otherwise, so as to prepare them for receiving the deposit of copper. This done they are plunged into cold water, and carefully dried in a suitable kiln, after which they are placed in sawdust for twenty-four hours to prevent oxidation.

The next operation is to remove any roughness on the surface which the articles may have contracted. This is done by means of sand paper or silver sand, and brushing with a scratch-brush, till they are made perfectly smooth, care being taken to remove any greasy matter from the surface.

The copper and silver have now to form one alloy, so as to unite them firmly together. For this a film of quicksilver is employed, dissolved in nitric acid. This is set aside to crystallise, and the crystals are dissolved to form the desired solution: the articles are then dipped therein, passed through water, and introduced into the vat containing the silver solution.

The silver solution consists of metallic silver dissolved in nitric acid diluted with water, with the addition of certain cyanides, till a given result is obtained. This is followed by a repetition of the copper process only with the silver solution, and the articles in due time appear in their silver garb, ready to receive the chasing.

Gold is prepared by being dissolved in nitro-muriatic acid. This chloride is digested with calcined magnesia, and the whole precipitated into an oxide. The oxide, boiled in strong nitric acid, dissolves the magnesia, and when washed forms a cyanide of gold and potassium.

The films of gold are deposited in the vessels by means of voltaic electricity,—a process requiring careful observation, both to ensure an adequate coating and the proper colour; if defective, it will have to be repeated.

The time of exposure to the heat depends upon its intensity, and the colour desired to be produced: these must be the fruits of experience, and will not fail to be acquired by practice.

The finishing process is the burnishing, which is the same as with the silver, and requires no further illustration.

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## THE COUNCIL MEDAL AWARDS AT THE GREAT EXHIBITION.

EVERY one who took an interest in the vast display of 1851, at Hyde-park, must have regretted that in consequence of its extent, and of the Jury Awards not being published till it was closed, no opportunity was afforded to the public of viewing the objects which had been selected by competent authorities as displaying the greatest amount of ingenuity, and the most advanced stage of progress in the Industrial Arts. The information exists in books, it is true; but has never been realized to the senses in the fresh and telling manner with which the Exhibition has familiarized us. To supply this want, and bring the chief results of the great gathering in Hyde-park prominently into notice, the Council, as will be seen by the subjoined circular, have determined to form a collection illustrative of the Council Medal Awards, which, studied in classified arrangement, and in a small compass, will, it is confidently hoped, prove both interesting and instructive.

Society of Arts, Manufactures and Commerce,
Adelphi, London, Feb. 25th, 1853.

SIR,—The Council of the Society of Arts have determined on forming a collection of objects either in the shape of specimens, models or drawings, illustrating the awards of the Council Medals made at the close of the

Great Exhibition of 1851. The Council have been induced to take this course, believing that such a collection may be made the medium of conveying much information to the public of a highly useful and interesting character, and in a very attractive manner.

You will readily appreciate the value of thus bringing together, within the smallest compass and properly classified, a miniature picture of the most remarkable and important contributions to the memorable display in Hyde-park; and as you were among those who bore away a Council Medal on that occasion, I trust that you will consent to send me what you consider will best illustrate the object which won for you so honourable a distinction.

May I ask you to favour me with an early reply; and if in the affirmative, would you be so good as to say the amount of space required, and the nature of the objects you propose to send. It is desirable that the articles should be delivered at the Society's house, on or before the 1st of May of the present year, as it is intended that the Exhibition should be opened shortly after that date.

I am, Sir,
Your faithful Servant,
EDWARD SOLLY, *Secretary.*

## DUTIES ON PAPER, NEWS, &c.

AT a recent meeting of the Institutes' Committee, the following Resolution with reference to the fiscal restrictions on Paper, Advertisements, News, and Foreign Books, were unanimously agreed to:

"That with reference to the interests of the Institutes in Union with the Society of Arts, the Institutes' Committee requests authority from the Council to inquire into the subject of the operation of the present fiscal restrictions on Paper, Advertisements, News, and Foreign Books; and to communicate with the Institutes, and otherwise, upon this subject."

Upon this being submitted to the Council, it was unanimously Resolved by them:

"That the Institutes' Committee be authorized to make the proposed inquiry in reference to its bearing on Arts, Manufactures, and Commerce generally, as well as on the Institutes."

## PHOTOGRAPHY.

WITH a view to extend the knowledge and appreciation of the art of Photography, as far as possible, the Council have recently addressed circulars to all the contributors to the late Photographic Exhibition, asking for their aid, either by the loan or presentation of specimens of their productions, in the formation of a collection to be circulated throughout the country, and exhibited at the different Literary and Scientific Institutions and Mechanics' Institutes in union with the Society. From the manner in which these circulars have been received, and the encouragement already accorded to them, it is believed a valuable series will be obtained; the more especially, as the Council of the Photographic Society have kindly promised to give all the assistance in their power.

While on this subject, it may be noticed that a suggestion was made to the Council at the close of the Photographic Exhibition, that another collection should be immediately formed of Photographic apparatus and implements. This suggestion has been adopted, and it is proposed to arrange and open a collection of this kind early in the ensuing month.

## INSTITUTE LECTURES.

IT will be remembered that in the Report of the Institutes' Committee on this subject, which appeared in No. 8 of this Journal, it was stated that all applications for Lectures on "Physical Geography" and "Volcanoes and Earthquakes" had been committed to Mr. W. Hughes. Since that time Mr. Hughes has been in correspondence with the Secretaries of the several Institutions who so applied, and the results will now be briefly given. The Highgate Institution closed with Mr. Hughes at once for a course of four Lectures on Physical Geography, which are already in progress of delivery. He has agreed to lecture at Bury St. Edmunds, Sudbury, Coggeshall, Braintree, and Bishop Stortford, on five successive nights during the third week in March. He has similarly agreed to visit Stamford, Boston, Grantham, and Durham, on four successive evenings, early in April. Later in April he has arranged to lecture on four consecutive evenings, at Staines, Newbury, Winchester, and again at Newbury. And he has, in addition, undertaken to lecture on two consecutive evenings at Faversham during the present session, as well as to visit the Institutions at Thame and Bedford.

While acknowledging the courteous reception which his communications have uniformly experienced, Mr. Hughes remarks that more might probably be accomplished, even by an individual lecturer, if greater promptitude of decision were exercised by the different Institutions; and if, especially, there existed more of concert and pre-arrangement amongst the Institutions in any particular locality. The advantages of co-operation are nowhere so manifest, nor the desired result so speedily realized, as when several neighbouring Institutions, before submitting their proposals to the Society of Arts, have mutually come to an arrangement by which a lecture on any required subject may be delivered in succession, upon consecutive evenings, to the members of each. In such a case, the task of final arrangement—both to the Institution and the lecturer—becomes obviously very much simplified.

## LIST OF INSTITUTIONS TAKEN INTO UNION WITH THE SOCIETY OF ARTS,

*Since November 23rd*, 1852.

Bath, Athenæum.
Battersea, Literary and Scientific Institution.
Bodmin, Literary Institution.
Chelmsford, Literary and Mechanics' Institution.
Coggeshall, Literary and Mechanics' Institute.
Crieff, Mechanics' Institution.
Dublin, Statistical Society.
Hertford, Literary and Scientific Institution.
Holmfirth, Mechanics' Institution.
Kingsland, Dalston, and De Beauvoir Town Literary and Scientific Institution.
Lancaster, Church of England Instruction Society.

Lees (near Manchester), Literary and Scientific Institution.
Maldon, Literary and Mechanics' Institution.
Norfolk and Norwich, Literary Institution.
Norwich, Young Men's Institute.
Penzance, Institute.
Swindon, Library and Literary Institution.
Ventnor and Bonchurch, Literary and Scientific Institution.
Wellingborough, Parochial Lending Library and Reading-Room.
Wellington (Somerset), Literary Society.
Welshpool, Reading Society.
Wenlock, Agricultural Reading Society.
Whitby, Institution of Popular Arts, Science, and Literature.
Wiveliscombe (Somerset), Mutual Improvement Society.

The Union now comprises 255 Institutions.

## MR. WARREN'S LECTURES ON THE COTTON TRADE AND MANUFACTURE.

THIS Course of Lectures was brought to a close on the evening of Thursday, the 24th of February. For the purpose of illustration Mr. Warren has an extensive set of appliances, consisting, in the first place, of twelve model machines, constructed and capable of being worked with equal precision to any that are employed in a regular cotton-factory and print-works. He has also a large map of India, a magnified drawing of the cotton-plant, a drawing of the early methods of manufacture, a case of specimens of the varieties of cotton grown in British India and elsewhere, together with seeds, pods, cotton-oil, and oil-cake; a specimen of Hindoo calico-printing, a Hindoo dress and turban, a quantity of chemicals and dye stuffs; print-blocks of the earliest and latest construction; dye-vats, bleaching-troughs, engraving tools, and steaming apparatus. Mr. Warren commenced his first Lecture, by giving a sketch of the natural history of the cotton-producing plants.

The Tree Shrub and annual herbaceous varieties were passed under review, and the reasons given why the two former were valueless to the manufacturer. The mode of cultivating the latter was described, the designations of long and short staple were explained, and the uses to which they were respectively applied pointed out; as were also the situations in which they grew, the short staple growing inland, while the long staple flourished only on the salt-marshes and low islands along the sea coast. Some striking characteristics of the cotton fibre were then given, showing how naturally and beautifully this fibre was adapted, first for the purpose of being spun into yarn; and next for the retention of those forms and colours which the skilful calico-printer applied to them when woven into cloth. The rise and rapid progress of cotton cultivation in America, and its influence upon the slave population there, was next dwelt upon. The first importation of cotton from America to this country was one bag of 300lbs., in 1785. A short time prior to this, the number of slaves in the United States was 629,697; and so difficult was it to find profitable employment for them, that their reputed owners had a meeting to deliberate upon the propriety of freeing their bondsmen. The successful cultivation of cotton, however, gave a new turn to matters. The rapid progress of mechanical inventions for manufacturing this cotton caused the demand to keep pace with the increasing ability to supply, and has done so ever since. For some years past we had imported from America from ten to twelve millions sterling-worth of cotton. The yield last year amounted to the enormous quantity of 3,500,000 bales. The slaves have increased in number to upwards of three and a half millions, and in value to nearly forty millions sterling. In England more than two millions of people are dependent upon the cotton-trade for their daily bread; and it should be generally known that we relied almost solely upon America for the thousand tons and upwards daily required for the supply of our cotton-mills and manufactories. After having explained the necessity for separating cotton-fibre from the seed to which it adheres, the way in which this was originally accomplished, and the superior advantages of Whitney's Saw Gin—one of which Mr. Warren put in operation—he proceeded earnestly to show the dangers to which the entire trade of this country was exposed, by being thus dependent upon one country for the supply of this important article.

The coloured population of the world amounted to about twelve millions of human beings, nearly one third of whom were held in bondage in the cotton-growing states of America. The rapid spread of knowledge and commercial enterprise, together with the almost universal aspiration for freedom amongst the nations of the earth, was slowly, it may be, but certainly influencing this great branch of the human family, and it could not be supposed that they would always submit to the degradation to which they were now subjected. Any sudden attempt to free themselves from this bondage, whether successful or not, would be made at a sacrifice of, at least, one season's crop of cotton. Another danger existed from the fact, well known to those who had studied the subject, that the cotton plant was liable to diseases similar to those which affected the potato. A third danger arose from the constant efforts that were made by American statesmen, planters, and manufacturers, to raise the price and decrease the supply of cotton to this country, under the impression that by so doing they would enhance their own interests. This was bad reasoning, and worse policy on their parts; but nevertheless our trade had been jeopardised, and we had had to pay several millions more for cotton than we should have done, but for the existence of such a feeling. The amount of cotton produced in the States was constantly fluctuating. In 1847 there was a deficiency of 625,500 bales as compared with the preceding year, and yet England had to pay between four and five millions sterling more for the reduced supply. He would then put to his audience a most serious and important question,—What was to be done with the two millions of people who depended directly upon the cotton trade for their daily bread, if anything should occur to cut off the supply of cotton from America for one year? Our only hope lay with British India, where it had been shown that an

immense tract of country existed that had been proved to be capable of supplying any quantity of cotton suited to the purpose of our manufactures, and at one-third the average price paid to America. There also a free population existed, that from time immemorial had been growers of this commodity, who would be glad to work at one-sixth of the daily sum that a slave in America cost his master. In support of this, the evidence of gentlemen who had resided and held high civil and military appointments in India, for periods of from ten to forty years was given, and samples of excellent short staple cotton were shown that had been grown in Darwhar and Coimbatoor, which a gentleman in the civil service of the East India Company had lately stated in Manchester could be grown in any quantity, and be delivered in Liverpool at 2d. a pound. This has been the natural price for sixty years past, although we had paid during that period 1s. 10d. a pound for such cotton; and in the years 1845, 1846, and 1847, it was proved, in evidence before a Committee of the House of Commons, that we had paid 14,557,842*l.* more for our supply of cotton from America than the same quantity from British India would have cost us, even had we paid 3*d.* instead of 2*d.* a pound for it. These, Mr. Warren contended, were serious matters for the consideration of a commercial people.

Mr. Warren commenced his second Lecture by directing attention to the fact, that the part of the world now called British India was the original seat of the cotton manufacture. He showed from the writings of travellers and historians—from Herodotus, 445 B.C., down to the Rev. William Ward, late a missionary at Serampore—that the inhabitants of that country were eminently skilful in the cultivation, manufacture, and colouring of cotton; and that rude and simple as their manufacturing operations have always been, and still are, they till lately maintained their superiority against the whole world; and even now stood unrivalled in some departments of their trade. The early history of the cotton trade of this country was glanced at, and evidence given to show that 119 years after its first mention as a trade, its entire value did not amount yearly to half a million sterling. The new era of mechanical progress then began to dawn—before entering upon which Mr. Warren gave his audience evidences of the condition of the people, as deduced from their houses, clothing, food, the price of corn, the rate of wages, the state of the roads, means of communication, condition of the great sea-ports, agriculture, rent of land, sanitary arrangements, population, literature, and mortality. The progress of the inventions affecting the cotton manufacture was then systematically traced from 1738 to 1790; during which period the principles upon which manufacturing machinery should be constructed were laid down by Kay, Wyat, Paul, Butler, Kay, jun., Highs, Hargreaves, Lees, Wood, Crompton, Cartwright, and Watt; the respective inventions of each were specified in chronological order, and the peculiarities of each invention were explained and illustrated by the model machines before alluded to. The process of manufacture was then entered upon, some of the preparing machines being set in motion. Cotton, the audience were informed, was not quit or freed from its seed in this country (as they had seen it done on the previous evening); but this operation was conducted on the spot where it grew; it was then pressed into bags, so that when it reached the manufacturer the fibres were pressed close upon each other, and in all directions, whereas they were required to be parallel to each other. The first process in this country was to open or separate the fibres by passing them through the "beaten" or "blowing-frame," the operation of which was explained. On emerging from this machine the cotton was found to be deprived of a large portion of the dirt that had been allowed to remain with it, and it was then lightly wound upon an iron roller in front of the machine, forming something like a sheet of wadding. This sheet of cotton was then transferred to the "feed-cloth" of the "carding engine." On this machine being set in motion, the cotton was in a few seconds seen to issue from it in the shape of a continuous "sliver," or ribbon. While this was going on, Mr. Warren explained the old method of making a "sliver;" by which it appeared that with much labour the operator could only get one sliver of some twelve or fourteen inches in length, at the utmost, and then had to keep joining them as they were used; while by this process they could be produced, literally, miles in length. The fibres then required to be laid still more parallel, and to accomplish this the sliver from the carding engine had to be passed several times through the "drawing machine."

The operation of this machine consists in drawing out or lengthening the sliver from 1 to 64; and therefore to maintain its bulk, it is necessary to increase the number of slivers in the same proportion. The machine was set in motion and the process explained, and on the cotton leaving the last "head" of the "drawing frame," it nearly resembled silk. The fibres having now been brought to a proper state of parallelism, the "sliver" is placed at the back of the fourth machine, or "roving frame," the duty of which is to take this frail stream of cotton fibres, which may be easily blown asunder, and make it into a soft thread; then to deposit that thread upon a brass bobbin with the utmost regularity, regulating its own speed in certain parts, so as to maintain an even twist throughout the length of the thread. The bobbin on which the thread is wound, is constantly increasing in diameter; it rises and falls to receive the thread, marks its own progress, and when it has done enough throws itself out of gear.

The means by which all this is brought about were popularly explained; and Mr. Warren concluded by observing, that his audience would probably be inquiring in their own minds the reason why Arkwright's inventions were not spoken of. The only one he (Mr. Warren) could assign was, that to the best of his knowledge and belief (and he had been at some trouble to get at the facts of the case) Arkwright never did invent anything, or lay down any one principle upon which our cotton machinery was constructed. It was true that Arkwright had patented several inventions as his

own; but it was also true that in courts of law he was proved to have pirated not only the ideas of the real inventors, but their drawings, models, and tools also. These were facts well known and attested; and it was painful to find men of learning and ability so far forgetting the duty they owe to the less-informed part of the world, as to write the history of great facts, about which they either knew nothing, or were prepared to sacrifice truth rather than be at the trouble of seeking it. Nor was it creditable to the country, and more especially the trade, that has so immensely benefited by the genius and perseverance of the truly great men whose names and inventions had been given, that they should so easily allow the very fame of their benefactors to be pirated. It was to be hoped that the time would come, when some of the gratitude that was due from the country to these founders of its true greatness would be shown in such a way as would gladden the hearts of their descendants, some of whom he (Mr. Warren) had the honour to know; to whose "sense and worth" he could proudly bear his humble testimony.

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On Tuesday, Friday, and Saturday mornings, Mr. Warren met the students of King's College School, and the Natural History and Chemical Classes of the City of London School, and delivered addresses on the Progress of Manufacturing Art, as illustrated by the Cotton Manufacture. Some of the more prominent mechanical inventions and chemical adaptations in our manufacturing processes were pointed out, and the advantages the world derived from their practical application was dwelt upon, as was also the great facilities enjoyed by the present over the past, for arriving at correct conclusions on subjects of general interest, and acquiring an extensive knowledge of men and things; and the students were earnestly exhorted to lose no opportunity of availing themselves of these facilities and advantages, so that when it came to be their turn to take a share in the governing and conducting of the affairs of this great commercial country, they might be enabled to do so wisely and well. These addresses occupied two hours each in the delivery, and were received with deep interest by the pupils.

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## THE POST-OFFICE IN THE UNITED STATES.

THE following facts have been gleaned from the Report of the Postmaster-General of the United States, for the fiscal year ending June 30th, 1852, showing the growth and condition of that important department.

There existed in the United States, at the above date, 6,711 mail routes, their aggregate length being 214,284 miles; comparing these figures with those of the preceding year, there appears an increase during the twelve-months of 17,994 miles of mail routes, and of 5,713,476 miles of actual distance traversed by the mail. While the comparison with 1842 informs us that the distance travelled by railway and steam-boat has increased upwards of 13,000,000 miles, or 174 per cent. in ten years.

The increase in Ocean Postage service from its commencement, in 1847, is shown by a table of its cost for each year. In 1848, only 100,500 dollars were expended on this service; whereas in 1852, the outlay amounted to 1,896,250 dollars.

The reduction of the rates of postage which came into operation at the commencement of the year to which the Report refers, caused a diminution of little more than 22 per cent., being a very much smaller reduction than occurred during the first year of Penny Postage in this country. The Official Report draws special attention to this loss of revenue, deals a sly blow at the "sanguine advocates of cheap postage," but touches most cautiously upon the increased income which must flow in a few years from the growth in the number of letters. This official caution does not, however, lead to a condemnation of cheap postage, but, on the contrary, the Postmaster-General says, "All experience warrants the expectation, that as a community becomes accustomed to cheap postage, written correspondence will increase. From this cause, and from the rapid growth of the country in population and business, the receipts of the Department must ultimately exceed its expenses, and enable it to refund to the Treasury the sums advanced. In the mean time, the appropriations made from the Treasury in aid of the Post Office establishment, may be deemed safe and beneficent investments for the advantage of the *whole people*, each one of whom, even if not engaged in business correspondence, has a deep interest in the diffusion of intelligence, and the promotion of social intercourse."

The Postmaster-General complains that arrangements have not been made for the exchange of a closed mail with France *viâ* England, in consequence of the British Government insisting on a transit postage of twenty-four cents. (one shilling) per ounce; and says that France is inclined to enter into a treaty with the United States, independent of this country, by means of a union line of mail steamships direct between New York and Havre. This passage shows the impolicy of our present high rates of Ocean postage, and the necessity for at once laying the foundation of a cheap system of international postage, which shall permit the transmission of mails, closed or open, throughout all civilised countries, with the greatest possible facility and at the smallest possible cost. Correspondence is the very breath of commerce, and that country will be the greatest gainer which is most liberal in arrangements for its circulation.

The number of letters passing through the post-offices of the United States, during the year, was under 96,000,000, being less than a quarter of the number passing through our own Post-office; while, on the other hand, the "newspapers and other packages of printed matter, *chargeable with postage*," amounted to very nearly 88,000,000; and 27,000,000 more passed free of postage.

The Report notices the proceedings of the Postage Association in London, says that the object at which it aims is very desirable; but that, in the imperfect state of our foreign postal arrangements, it is deemed inexpedient, at present, to enter upon any new experiment. This latter part seems a *non sequitur* to the former. It might be argued, from the admitted imperfection of the present system, that the necessity for doing something as soon as possible is proved; and that such will be the opinion of the Legislature when the matter is fairly placed before them, is fully believed.

The Postage Association is now in full operation, and a Deputation from the Council and City Committee is appointed to wait upon Lord Canning, the Postmaster-General, at Three o'clock this day.

## PROCEEDINGS OF INSTITUTIONS.

HALIFAX.—The Half-Yearly Meeting of the members of the Mechanics' Institution, was held on Tuesday, the 21st ult., James Stansfeld, Esq., Vice-president, in the chair. The Report presented an outline of those operations which were more strictly educational, and which were considered to be the primary and legitimate objects of all such Institutions. The library, it appears, now consists of 3,577 volumes, and the issue during the half-year, amounted to 6,720 volumes. The classes for reading, writing and arithmetic, grammar, drawing, and French, have been well attended. The news and reading-room has been supplied with six daily London papers, twenty-two weekly and other local papers, five quarterly reviews, and eighteen magazines and serials. The small attendance at lectures is attributed to the many facilities now afforded for gaining miscellaneous information. The number of members is 502—of subscribers, 239—making a total of 741; showing an increase of sixty-four during the half-year, and of 113 during the year. The treasurer's statement of accounts shows an expenditure of 354*l.* 11*s.* 2*d.*; to meet which there was an income of 356*l.* 15*s.* 1*d.*; but as there was a balance owing last year, of 161*l.* 6*s.* 11*d.*, there still remains a debt of 159*l.* 1*s.*

SOUTHAMPTON.—On Wednesday evening, a Lecture was delivered at the Polytechnic Institution, on "Books," by the Rev. J. W. Wyld. The lecturer carried his audience back to the period when the rude hillock or unsightly stone erections were the unmeaning records of some important event or distinguishing achievement. He then gradually conducted them through the successive eras of literary progress, including the leaf, skin, and manuscript, until the mighty lever of intellectual power—the Printing Press—appeared upon the stage of human enterprise. The secret of success or failure among authors was clearly developed, and a well-timed satirical rebuke levelled against brainless writers and presumptuous pamphleteers. The lecture abounded with interesting literary statistics, beautifully interwoven with originality of thought, great truths, and practical comments; and at its close the lecturer was awarded a cordial vote of thanks by the audience.

## TO CORRESPONDENTS.

*Notice.*—Members, and others, who can furnish or obtain original information or suggestions on the subjects included in the Society's Premium-list, or other topics connected with the Society's various departments of operation, are invited to communicate the same to the Secretary, in as condensed a form as possible, for the purpose of being either read and discussed at the evening meetings, or inserted in the Society's weekly Journal. Anonymous letters cannot be attended to. All communications, whether the author's name is to appear or not, must be accompanied by the writer's name and address.

*Country Institutions.*—Correspondents who are so good as to send reports of proceedings of Local Institutions, are requested to forward them immediately after the Meeting to which they refer, and not later than Tuesday morning, if intended for insertion in the following Friday's Journal.

A neat Case, for holding the Numbers of the Journal for half a year, is now ready, and may be had of the Publisher, 186, FLEET-STREET, price 1s. 8d.

Members of the Society who do not receive the JOURNAL regularly, are requested to give immediate notice to the Secretary; and, in order to prevent mistakes, they are particularly requested to signify any change which they desire to have made in their address, with as little delay as possible.

*Special Prize.* J. S., Islington.—The Special Prize offered by the Society, for the best Essay on the History and Management of Literary, Scientific, and Mechanics' Institutions, is open to general competition, and is not in any way restricted to the Members of the Society of Arts. The length of the essays is entirely left to the competitors themselves. Rejected communications will be returned to the authors, if applied for.

## QUESTIONS FROM CORRESPONDENTS.

*Dyes for Colouring Wood.*—What simple indelible dyes will best colour wood, red, blue, green, and yellow? The colours to be good and easy of application, as logwood is, by an infusion being made of it, in which what is to be dyed is steeped. [No. 44.]

*Birdlime.*—Can you tell me how birdlime is made, what is the process adopted in its manufacture, and where is it chiefly carried on? [No. 45.]

*Coating for Water Tanks.*—Can you inform me of the cheapest and best composition to be used for coating the insides of wooden cisterns or tanks, for containing water, that will add to their preservation, and will not become decomposed or peel off by exposure to the atmosphere? [No. 46.]

*Anti-Corrosive Paint.*—Can any of your readers give me the name and address of the manufacturers of the "Anti-Corrosive Paint?" A. T. [No. 47.]

## MISCELLANEA.

NEW OIL.—A valuable oil obtained from the seeds of the *Aleurites triloba* or *Lumbang*, has recently been introduced into commerce; its applications to various economical uses having been patented by Mr. G. F. Wilson. The kernel of the Lumbang or candle nut, has long been used by the natives of Manilla as a source of artificial light; it contains nearly 50 per cent. of a clear colourless oil. The kernels being divested of their hard outer coverings or husks, are strung upon rushes, and thus form rude candles, which are used by the fishermen.

MUSEUM OF ORNAMENTAL ART, AT MARLBOROUGH-HOUSE.—The numbers attending, &c., during the month of February, were as follows: 4,286 persons on the public days, and admitted free; 967 persons on the students' day, and admitted as students on the payment of 6*d.* each, besides the registered students of the classes and schools.

## PARLIAMENTARY REPORTS.

### SESSIONAL PRINTED PAPERS.

Par. No. *Delivered on 23rd Feb., 1853.*

73. Scinde (Meer Ali Morad)—Papers.
139. Ordnance Estimates.
144. Bills—Sheriff Courts (Scotland).
146. ,, —Metropolitan Improvements (Repayment out of the Consolidated Fund); Prisons (Scotland)—Seventeenth Report of Inspectors, Part IV.

*Delivered on 24th Feb.*

106. Population, Inhabited Houses, Electors, &c.—Return
122. Auckland Islands—Correspondence.
147. Bills—Slave Trade (New Granada).
148. ,, —Slave Trade (Sohar, in Arabia.)
153. ,, —Office of Examiner (Court of Chancery) amended; Mr. Harwood (Arrest by the Austrian Authorities)—Correspondence; International Copyright (Prussia)—Accession of the Dukes of Anhalt to the Convention.

*Delivered on 25th Feb.*

87. Postal communication, &c. (India)—Return.
151. Canterbury Election—Minutes of Evidence.

*Delivered on 26th and 28th Feb.*

125. New Churches—Return.
135. Poor Relief—Returns.
140. Paupers, &c. (Ireland)—Return.
145. Bank of England—Annual Accounts.
152. Lancaster Borough Election—Minutes of Evidence.
76. Sugar-growing Colonies (Jamaica)—Return, Part II.
160. Clergy Reserves (Canada) Act—Opinions of the Judges.
163. Committee of Selection—First Report.
165. Coffee and Chicory—Treasury Minute.
159. Bills—Court of Common Law (Ireland), amended.
161. ,, —Inland Revenue Office.
162. ,, —County Election Polls (Scotland).
169. ,, Commons Enclosure, No. II.

*Delivered on 1st March.*

104. National Gallery—Return.
119. Screw Steamer, "Greenock"—Copies of Reports.
150. Poor Rates (Clare)—Return.
165. Coffee and Chicory—Treasury Minute (a corrected copy).
167. Bill—General Board of Health (as amended in Committee, and on consideration of Bill as amended).

*Delivered on 2nd March.*

131. Metropolitan Police—Accounts.
142. British and Foreign Postage—Table.

155. Courts of Law and Equity (Ireland)—Return.
157. Queen Anne's Bounty—Account.
158. Letter-carriers—Memorials.
173. Clergy Reserves (Canada)—Returns.
174. Clergy Reserves (Canada)—Return of Number of Acres unsold, &c.
175. Clergy Reserves (Canada)—Bishop of Quebec's Letter, &c. &c.
154. Bill—Public-houses (Scotland).

## PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

*From Gazette, 25th Feb., 1853.*

*Dated 8th Jan.*, 1853.

57. W. Henderson—Manufacture of sulphuric acid and copper from copper ores, &c.

*Dated 28th Jan.*

218. T. S. Prideaux—Manufacture of iron.

*Dated 31st Jan.*

255. E. Leach—Preparing and spinning wool, &c.
258. F. Lawrence, W. Davison, and A. Lawrence—Improvements in steam-engines, &c.

*Dated 3rd Feb.*

290. T. Spiller and A. Crowhurst—Propelling.

*Dated 10th Feb.*

351. W. J. Curtis—Improvement in candlesticks.
355. W. Fulton—Finishing textile fabrics.
357. W. Ball—Machinery for looped fabrics.
359. R. Ash—Stopping bottles, &c.
360. G. Hutchinson—Treating oils, &c.
361. C. Breese—Ornamenting papier mâché, &c., with gold.
363. W. Potts—Improvements in sepulchral monuments.

*Dated 11th Feb.*

364. R. Thomas—Machinery for planing, slotting, &c.
365. Sir J. Murray—Deodorising cod-liver oil.
366. A. Sanguinède—Improved clasp or buckle.
367. W. Choppin—Improvements in locks.
368. R. D. Rea—Improvements in bits.

*Dated 12th Feb.*

369. T. R. Mellish—Closing scent and other bottles.
370. J. F. Stanford—Draining, &c.
371. G. Winiwarter—Improvements in fire-arms.
372. T. J. Perry—Construction of cornice-poles, picture and curtain rods.
373. G. Parry—Blast furnaces.
374. G. H. Bursill—Separating gold and other metals, &c.
375. G. L. Lysnar—Swivel hooks, &c.
376. W. Pidding—Crushing ores, &c.
377. W. Pidding—Purifying, decolorising, &c., oleaginous or gelatinous substances.
378. C. Hadley—Communication between guard and driver, &c.

*Dated 14th Feb.*

379. W. E. Newton—Apparatus for veneering. (A communication.)
380. C. J. Burnett—Driving machinery by water.
381. P. A. de Fontainemoreau—Treating fibrous substances. (A communication.)
382. P. A. de Fontainemoreau—Giving flexibility to beds, sofas, &c. (A communication.)
383. P. A. de Fontainemoreau—Tiles for roofing.
384. J. A. Gervais—Treating fermentable liquids.
385. F. C. Monatis—Improved mode of raising water.
386. C. J. Lambert—Preparation of bread and biscuits.

*Dated 15th Feb.*

387. W. Clark—Colours and paints.
388. J. Bethell—Obtaining copper and zinc from ores. (A communication.)
390. B. Greening—Machinery for making fences, &c., of wire.
391. T. W. Kennard—Improving draft of chimneys.
392. F. Chinnock—Securing axles in their boxes.
393. G. Stiff—Manufacture of paper.
394. A. Nicole—Rotary engines.
395. A. R. le Mire de Normandy—Articles made of gutta percha. (Partly a communication.)
396. W. B. and G. S. Whitton—Sewer and other pipes.
397. J. and A. Risdale—Ships' side-lights, scuttles, or ports.
398. H. Dircks—Sewing-machine,
399. H. Francis—Instruments for cutting, wool, hair, and vegetable matters.

*Dated 16th Feb.*

400. H. S. Ludlow—Removing dust, &c., and separating superior and inferior grains in wheat, barley, and malt.
402. B. Cook—Apparatus for lighting fires.
406. E. Sy—Improvements in bookbinding.
408. C. Sheppard—Improved stove, and apparatus for heating air for blast purposes.
410. A. V. Newton—Manufacture of printing surfaces.

APPLICATION WITH COMPLETE SPECIFICATION FILED.

429. N. Dutton—Manufacture and application of dowels, and machinery for same, partly applicable to other purposes. 18th Feb., 1853.

## WEEKLY LIST OF PATENTS SEALED.

*Sealed 26th Feb.*, 1853.

74. Christopher Kingsford, of 18, Buckingham-street, Adelphi—Machinery for solidifying peat, coal, and other substances of a like nature.
87. Robert Robertson Menzies, of Glasgow—Improvements in the manufacture of carpets and other fabrics.
172. John Jobson, of Litchurch—Improvements in manufacturing moulds for casting metal.
179. Frederic Newton, of Fleet-street—Improvements in the apparatus to be employed for producing photographic pictures.
672. Stephen Carey, of Great Guildford-street, Southwark—Improvements in the construction of viaducts, arches, bridges, and other buildings, upon a non-expansion principle.
941. Thomas Collins Banfield, of 18, Queen-square, Westminster—Improvements in the process and apparatus for extracting saccharine and other juices from beet-root or other roots and plants (A communication.)
1192. Archibald Douglas Brown, of Glasgow—Improvements in the construction of portable articles of furniture.
12. Edme Augustin Chameroy, of Paris, France—Improvements in motive-power engines, and in the application of motive-power to the same.

*Sealed 2nd March*, 1853.

8. Richard Wright, of Greenwich—Improvements in con structing vessels.
135. Robert Griffiths, of Great Ormond-street—Improvements in apparatus for indicating the number of persons entering, and the distance travelled, in public or other conveyances and places, for the prevention of fraud upon proprietors of public conveyances.
210. Henry Webb, of Willenhall, Staffordshire, and Joseph Froysell, of the same place—Improvements in fastening knobs to door and other locks.
447. George Gadd, of Fisher-gate, Nottingham—Improvements in apparatus for roasting coffee.
954. Samuel Neville, of Gateshead—Improvements in the manufacture of lamp-glasses and globes.
1053. Isham Baggs, of Liverpool-street—Improvements in obtaining or extracting gold and silver from their ores.
1086. George Michiels, of 57, Holywell-street, Westminster—Improvements in the purification and manufacture of gas.
1119. Jean Baptiste Mainier, of Rue de Marseille, and Charles Constant Bontigny, of Rue de Flandre, of La Villete, France—Improvements in concentrating syrups and other solutions, and in distillations.
1121. George Beadon, of Creechbarrow, near Taunton—Improvements in constructing and propelling ships and vessels.
1147. George Gwynne, of Hyde-park-square, and George Fergusson Wilson, of Belmont, Vauxhall—Improvements in treating fatty and oily matters.
1160. George Michiels, of 57, Holywell-street, Westminster—Improvements in the manufacture of gas.
1180. William Busfield, of Bradford, York—Improvements in apparatus for combing wool and other fibrous substances requiring like process.
1206. Robert Taylerson, of Three Indian King's-court, Newcastle-upon-Tyne—Improvements in ship-building.
5. Joseph John William Watson, of Old Kent-road, and William Prosser, of Adam-street, Adelphi—An improved method of manufacturing steel, and of carburizing iron.
11. John Bleackley, jun., of Myrtle-grove, Prestwich—Improvements in machinery used in washing, bleaching, dyeing, and sizing yarns and fabrics.

## WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

| Date of Registration. | No. in the Register. | Title. | Proprietor's Name. | Address. |
|---|---|---|---|---|
| Feb. 25 | 3427 | Improved Parasol Joint | Hargrave, Harrison, and Co. | 13, Wood-street, and 1, Clement's-court, Cheapside |